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Halieis. A Preliminary Analysis of Human Skeletal Remains Recovered from Excavations at Halieis, Greece

Marshall Joseph Becker
West Chester University of Pennsylvania, mbecker@wcupa.edu

Jenny H. Schlehofer

Nekropolen der Polis Halieis (Argolis)

Bestattungs- und Beigabensitten in archaischer und klassischer Zeit

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Appendix

Marshall Joseph Becker

HALIEIS.
A PRELIMINARY ANALYSIS OF THE HUMAN SKELETAL REMAINS RECOVERED FROM EXCAVATIONS AT HALIEIS, GREECE

INTRODUCTION AND BACKGROUND

During the summer of 1981, at the invitation of Prof. Wolf W. Rudolph (working under permit 27.502 from the Ephoreia at Nauplio), the author spent a portion of the summer field season at Porto Cheli studying those human remains recovered from the Halieis excavations from the years 1973–1975 and 1979. The ancient city of Halieis, at the southern tip of the Argolid had its major occupation from the VII to the IV centuries (McAllister 2005, Ault 2005). The necropolis from which these skeletons derive was in use during the period from the early VI to the end of V centuries BCE. No physical anthropologist assisted in the recovery of this skeletal material, although the verbal report of Nancy Whitney provided during her one day visit to the site in 1979 was recorded "by the trench masters and later entered in the notebooks" (Rafn to Becker, 24 Aug. 1988).

Craniometric data, extensive non-metric observations, and postcranial studies were the foci of interest in the 1981 program. Some dental information as well as observations regarding pathologies also were recorded (Becker Ms. A). These records now are in the Becker Archives at West Chester University of Pennsylvania. The primary concern at Halieis, however, was on those data which would provide the archaeologists with basic information regarding the age and sex of individuals recovered from specific mortuary contexts. These data would enable the excavators to better determine the ways in which the cemetery was used, and how mortuary programs operated in this society. This brief report is a summary of those findings, with the information indicating the directions toward which skeletal studies in Greece were turning in the 1980s (cf. Becker 1999b).

SKELETAL MATERIALS FROM THE SECOND OF TWO PHASES OF EXCAVATION

Modern excavations at Halieis have produced skeletal remains that can be grouped into three general categories. The first group includes human remains excavated before 1970 (see Jameson 1969). The necropolis areas 1 and 2, excavated in 1958, had yielded a number of cyst graves (simple pits dug into the ground), but area 1 and 3 dug in the 1970s produced no examples of this grave type. The early seasons concentrated on the recovery of Medieval and Late Roman materials from the city area, overlying the Greek deposits (see Rudolph 1979). Nine skeletons, from graves without mortuary offerings, were recovered. Notes on the excavations of these individuals were provided to me. While the skeletal information from these eight adults and one child is extensive,[1] their relationship to the earlier Greek population may be minimal. Therefore, these people have not been considered to be an ideal population for comparison with the Classical population. The skeletons from the Late Roman to Medieval periods, however, represent an important collection for future studies. The rapidly growing numbers of populations from Greece and southern Italy dating to the period between 400 and 800 CE that are now studied and published provides great potential for these remains.

The second phase of research at Halieis includes the 1973 through 1975 and the 1979 excavations. In 1973, some human remains were discovered in an area *outside* a supposed "wall," to the east of the necropolis.

The date of the "wall" and its relationship to the necropolis remain uncertain. The ceramics of these graves date these remains to the V cent. BCE, but the skeletal remains recovered were poorly preserved and appeared to be too few in number to offer useful comparative information. Included in this second phase are materials from excavations dating from 1974, 1975 and 1979, when 28 graves dating from the VI to the end of V centuries (ca. 600 – 400 BCE) were recovered. These provide the focus for this report. Before these excavations had begun Jameson (1969: 341) noted that burials of this period generally appeared in rectangular cists cut from two to four blocks of conglomerate rock and covered by stone slabs. This describes most of these graves, with the exception of some *pithos* burials (Graves 2 and 9) and two examples of graves cut into earlier burials (21 into 20, 18 into 26). J. H. Schlehofer has pointed out (27 July 2006) that B. Rafn had established the "new" sequence of numbers for these graves. My field notes include both numbers, as well data on locations in which they were found.

METHODS

Differential preservation of the remains required that multiple non-standard analytical methods be employed. This approach has proven extremely successful with collections that are far more fragmentary than the Halieis group (cf. Becker / Salvadei 1992). The material was stored in clearly marked bags placed into large and sturdy boxes. In almost all cases individual bags were evaluated as single units, and then the results of several separate evaluations were combined to reach a final decision. This provided the evaluator with an internal check of the varied methods (cf. Becker et al. 2009).

Evaluations of sex are presented in terms of certainty, with "M" or "F" used only where assignment is certain. Where the individual is probably female the evaluation is given with a single question mark (F?), and two question marks indicates that the person is possibly female (F??). In cases where there is still less certainty, reflecting the "art" of skeletal analysis, triple question marks are appended (F???).

After the skeletal analysis had been completed, discussions were conducted regarding the most problematical evaluations and the possibility that objects from the graves might resolve basic questions. The traditional approach to utilization of artifacts to infer gender has limitations, but also can be useful in the resolution of sex assignments that are based on fragmentary remains. Rafn (pers. Com.) subsequently pointed out that pins were found in, or were associated with 10 graves (2, 3, 6, 8, 11, 19, 22, 23, 26, and 27). These findings correlated exactly with the inhumations that had been independently identified as "female".

Age evaluations are given as close to the actual figure as possible. The term "adult" applies to anyone believe to be above 20 years of age, but for whom no more specificity can be achieved. The term "young adult" is applied here to individuals generally believed to be between 20 and 25 years of age, and "mature adult" is reserved for individuals believed to be above 60 years of age. Since the degenerative process above 60 years can be extremely variable, old adults of 80 years may not appear very distinct from adults of 60 years. The category "mature adult" gathers all of these people into a single category only because our ability to discriminate is low. For related reasons we will not consider the use of the Vallois (1960) method of clustering age groups. Those units selected by Vallois do not correlate with any expected (normal) biological groupings in the maturation or mortality process. Present techniques of establishing age categories that reflect human biological processes, plus the use of computer analysis, render useless earlier techniques based on mathematical categories.

The considerable extent of the information graves, with the remains of 28 people, span a period from about 600 to 400 BCE. The extensive dental, metric recovered from this population in a very short time provides significant comparative material for scholars concerned with biological change during this period of history. The 28, and non-metric information recorded in 1981 could provide a basis for studying this group as a single population since the total number of adults is very small and the time range is not particularly long.

Generally lacking from most of these inhumations are intact, or even partial long bones that could yield information enabling stature to be calculated. The soil conditions at this site did not favor the preservation of intact long bones, and no physical anthropologist was on hand during the excavation to provide stature evaluations or estimates of individual long bone lengths from materials observed in the ground (cf. Becker 1999a). Aside from noting that some individuals appeared unusually short (which for females might be under 150 cm., and for males probably would be under 160 cm.) very little can be said about stature in this group except in a limited number of cases. Since stature provides what may be the best visual indicator of nutrition, evaluations of the standard of living based on bone measurements must wait until such time as these data can be adequately collected.

The calculation of stature could be determined from the skeletal remains in only four cases, three representing the bones of males, plus one late adolescent (Gr. 20, who had not reached full height), possibly a female. These figures may be summarized as follow:

Grave 1: 165.00 cm.
Grave 4: 165.31 cm.
Grave 18: 169.94 cm.
Grave 20: 151.45 cm (age 16 years).

Since the adolescent in Grave number 20 had not yet reached her full growth his stature should be omitted from the sample for the purposes of calculating an "average" for this limited population.

A BRIEF LISTING OF DATA FROM THE GRAVES: AGE AND SEX

Grave 1: Male, age 35 – 45+. Stature 165 cm.

This person faced west while he lay with his head toward the southeast. A series of other human bones are associated with this person, including juvenile (?) bones in the pelvic area and adult human long bones beneath the right femur. A right humerus some 31.0 cm. long provides a calculation of stature of 165.93+4.05 cm., while a left femur with a maximum length of 43.1 cm. yields a stature calculation of 163.99+3.27 cm. The average of these two has been noted above.

No evidence was found for the presence of animal bones in association with this individual.

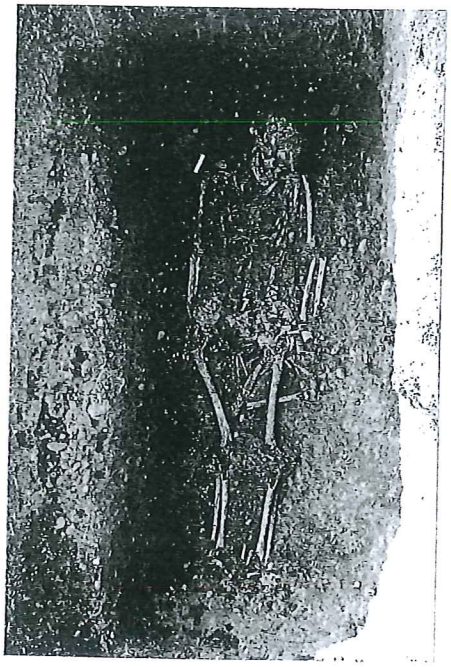

Figure 1: Grave 1

Grave 2: Two adults, Male age 45+ and adult female.
The condition of these remains indicates that they had been buried in an open chamber or in a well-sealed sarcophagus. Dr. Rafn confirmed this evaluation by noting that this material came from a very large *pithos*.

Grave 3: Female??, age 40 – 45 years.
These bones represent one of the more difficult individuals to be evaluated. While age was not terribly difficult to determine, the possibility that this may be a female (F???) was confirmed by the presence of two pins in the grave (one at each shoulder). Photographs indicate that this person lay with her head towards the southeast and face to the northeast. The right hand had its palm down lateral to the head of the right femur. The left hand has its palm up, apparently having been against the hip.

Grave 4: Adult (35+?), male? Stature 165.31+4.05 cm.
The supine body appears sprawled in the grave. The arms are akimbo and the hands rest in the pelvis with the palms down. The knee of the right leg is raised, and the legs are apart. The left humerus appears pathological. The right humerus measures 30.8 cm., enabling us to calculate a stature of 165.31+4.05 cm. One small collection of material, in bag "X", contained only unidentifiable fragments of this person. Bags "H through Q" also appear to belong with Grave 4.

Grave 5: Male, age 50+.

Grave 6: Female??, adult.

Grave 7: Child, 11 – 12 years.

Grave 8: Female?, age 35 – 40 years.
This person was recovered from locus 571.50/920: U. 8.

Grave 9: Two children, ages 5.5 and 5.75 years. These remains were placed into a *pithos* for burial (cf. Becker 2007).

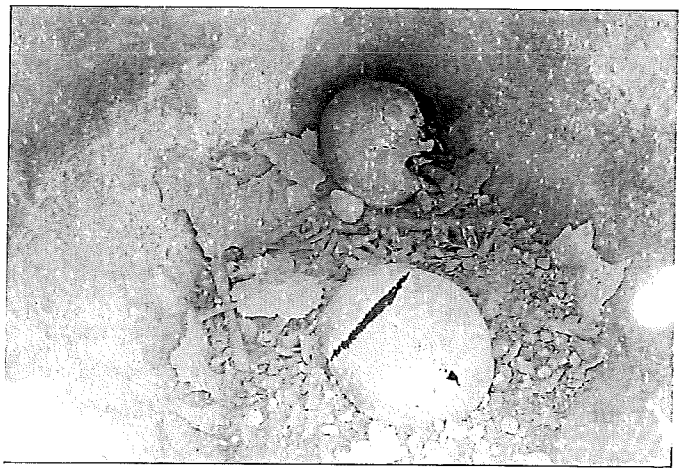

Figure 2: Grave 9

Grave 11: Female, age 30 – 35 years.

Grave 12: Child, 9.5 – 10 years.
Most of the bones of this child are in very poor condition and provide no information. Only the very small mastoids give an indication of age, but the dentition is nearly completely represented providing a good sample for a child of this age. No caries are present. All four first molars are in place and show slight wear. The crowns of the second molars are complete, as they would be about age seven or eight years, and perhaps 20 % of the root has developed. All of the deciduous molars are in place, and the mandible retains much of its form.

The upper central incisors show only slight dental shoveling. Only one of the upper lateral incisors is present and this shows an interesting vertical crest down the center of the lingual surface, the exact opposite of shoveling. Photographs of this unusual trait have been taken.

Grave 14: Male??, adult.
This individual may have died at a "mature" age, probably at over 60 years.

Figure 3: Grave 14

Grave 15: Female???, age 50+.
The skeletal remains of this person were not located [14 VII 79, Tr. 79-4: U. 7, bag KK], but an examination of the photograph (H-79-MISC-30) and the field drawing suggest that this must be an adult and an apparently small mastoid suggests a female. The preservation of the skull and long bone shafts suggests that this person had achieved adulthood. The right mandibular teeth appear to be missing the second and third molars, suggesting an age above 50. However, the stature, roughly calculated from the drawing, is about 141 cm., suggesting that either this is a very short woman or that the scale or the drawing is in error. The possibility that the stature of these people in general is quite small may be very good, but we have only very limited data from this site and no useful comparative information (see below). The absence of pins in this grave may reflect a male, but the absence of bones (and possible pins?) leaves us with only "possible" stature and an apparent small mastoid as indicators for the evaluation of sex.

Grave 16: Male?, adult.

Grave 17: Male??, age 20 – 22 years.
Identification of sex in young adults continues to be a problem, particularly in gracile populations such as this.

Grave 18: Male, age 50+. Stature 169.94+3.27 cm.
The excellent dentition of this individual provides an indication of age only through the considerable wear pattern on the tooth surfaces. The lower left third molar appears to have been lost before death. The right femur can be calculated as being 45.6 cm. long which indicates a stature of 169.94+3.27 cm. The femur midshaft diameter is 28 mm. This man lay supine in his grave with the arms extended at the sides (parallel to the body) and the palms down.

Figure 4: Grave 18

Grave 19: Adult, Female???
The complete decay of the skull into very small fragments and the absence of teeth, reflecting either a recovery problem or ante-mortem dental loss, renders difficult the evaluation of age or sex. Some pelvic fragments suggest that this may be a female, as does a radius (?) shaft fragment. Femur midshaft diameters of 30/24.7 mm., however, could be within the normal male range and originally was taken as diagnostic in this evaluation (cf. Becker / Salvadei 1992). However, two pins were found just outside the grave, but probably associated with this person, may reflect the gender of the person inside.

Grave 20: Male?, age 16 years. [Immature stature ca. 155 cm.]
This adolescent, who had not yet reached full growth, was lying supine in his grave with his arms crossed over his chest. Examination of the photographic record enabled us to calculate stature at 155 cm. based on total length. These same photographs also enabled us to estimate right humerus length at 26.3 cm., and from that to calculate stature at 151.45+4.05 cm. (Trotter / Gleser 1952, 1958). Given the probability of foreshortening in the photograph, the "total length" stature is probably closer to correct (cf. Becker 1999a). His ultimate height would have been close to that achieved by other adult males in this sample.

Grave 21: Male, mature adult.
The bones of this individual seem to have collapsed over those of the person in Grave 20, as if these were both in wooden containers that deteriorated and merged. The excavators believe that these two bodies were separated only by a thin layer of earth. If so, the interval of time between burials would have been very short, perhaps as little as a few weeks or months. Some ribs of Grave 21 remained articulated, as seen in photographs, but other bones appear relocated or placed in the corner of the lower burial.

Grave 22: Adult Female

These remains originally had been identified as being from TR 570/925: U. 8, as distinct from Grave 8 (in TR 571.50/920: U. 8), q.v.

Schlehofer says that this grave was below a tumulus in which the skull of a child was found above a *kotyle* (drinking vessel).

Grave 23: Female, age 25 – 30 years??

Grave 25 and pyre: Two people, from two separate contexts:

A. Pyre: Cremated adult from a "pyre" (73-1, U. 6).

B. Grave 25: Neonate (73-1, U. 7).

These remains were together in storage; stored as if they had been recovered from a single grave. The remains of a pyre on which an adult had been cremated were located just to the northeast of an *hydria* into which a neonate had been deposited.[2] But these two contexts were not in the same chamber. These human remains reflect the use of two very different mortuary procedures, each of which may reflect or correspond with the age of the deceased (cf. Becker 1990; also Becker / Donadio 1992).

The cremation was conducted at a medium-high temperature (ca. 850 C), but insufficiently high to porcelainize any of the bone (see Becker 1995b; also Becker 1998, 2005c, 2008a). The fragments from this context are generally blackened, or charcoal gray in color reflecting a slow burn. The few skull fragments give no clue as to age or sex. Pieces of two teeth are present, but are not diagnostic. While the archaeologists might wish to infer that the principal burned skeletal remains were removed from this pyre context and buried elsewhere, that need not be the case. Sufficient human skeletal material was recovered from this context to enable the deceased to be identified as an adult.

The infant in the *hydria* appears to have been delivered at term, but died within two months after birth. No remains of the teeth were recovered. A small piece of sea shell with the remains may reflect an ornament or offering.

Grave 26: Female, age 16 – 18 years.

These remains, of a young and very small female, were damaged after the grave had been partially exposed in 1975. According to Schlehofer, subsequent bulldozing damaged the unexposed portion of the skeleton. The burial under it (Grave 18) appears to have been relatively unaffected. The excellent condition of the bones recovered, however, was reduced in value by difficulties encountered in storage. Some small scraps of bone also were recovered. Both Grave 26 and Grave 18 below it have the same orientation, but Grave 26 has arms placed across the chest. The Grave 26 skeleton was too damaged to allow measurements being made of the long bones.

Grave 27: Female, age 60+.

Grave 28: Adult Male

Others

A great number of excavated units produced fragments of human skeletons, a situation that commonly occurs both in cemetery areas and also in areas far from any known mortuary activities. These clusters of bone at Halieis were evaluated, but only a sample will be presented here as an indication of what kinds of data can be elicited from these contexts.

Tr. 570/925: U. 7. Tumulus (over Grave 22) with remains of a child, consisting only of a skull. Approximately 5 years of age.

The proximity of this material to Grave 14, an adult female, should be noted. The excavators declined to assign this a burial number. Relocated skulls, as well as other portions of the skeleton, are common throughout the Mediterranean, and the world (Becker 1996b, 1997b, 2009).

Tr. 575/919: U. 10 (under Unit 2). Present here are two handful of miscellaneous and unrecognizable bone fragments of a grayish color. These could be either animal or human. The poor state of preservation could reflect a midden deposit of animal bone, or debris relocated from a human burial area. The context of this location, and materials from the surrounding area might be useful in evaluating these remains (see Becker 1998b). The possibility that these represent animal sacrifice or some kind of offering is nowhere supported by the evidence.

Tr. 575/919: U. 18 (under U. 12). In 1974, the excavation of this unit produced 3 clusters of human bone as follow:

a) Two small pieces of grayish and unrecognizable bone, not cremated.
b) A handful of tiny gray bone fragments, all unrecognizable.
c) Fragments of a very fragmentary human child's skull, of a yellowish color. No teeth were in association (but, see footnote 2).

Chronology of Graves

Years BCE	Grave Numbers (N=28 and the pyre)
575 – 550	1, 7, 9, 12
ca. 550	13
550 – 525	14
600 – 500	2, 3, 8, 11
500 – 475	16-19
475 – 450	22
500 – 450	24
450 – 425	23, pyre
425 – 400	26-28
not datable:	4-6, 10, 15, 20, 21, 25

SUMMARY

The 28 graves from which human remains of any type were recovered included the bones of 28 individuals. Eleven males and eleven females were identified, and the cremation at the pyre is inferred to have been a female (for a total of 12). Two of the inhumed skeletons represent a male of ca. 16 years and a female age 16 – 18 years, both here considered in the "adult" category. We would expect a slightly higher number of female relative to males in a "normal" population. The fact that there are fewer females than males represented here almost certainly reflects the small sample size, although "missing" females are not uncommon in skeletal samples (Nielsen 1988–1989, Becker 2005a, 2007b).

The five sub-adults in this sample include one neonate found in Grave 25 (near a cremated adult; cf. Becker 1987). See below for the probable discovery of a second perinatal skeleton. The other four sub-adults range in age from 5.5 to ca. 11.5 years (see also TR. 570/925: U. 7). Four sub-adults in this age range from a population of 28 individuals (14 %) provides a percentage that is consistent with findings relating to mortality rates among

different age categories from throughout antiquity (see Becker 2007a, 2008b, 2011, 2012, 2014). The single neonate, however, suggests a considerable under-representation of perinatal mortality, which often runs as high as 50 % of all "births" (Becker 1995a, 2007a; esp. Bourbou 2001). The probability that a separate cemetery was used for all children in this population who died before the age of 5.4 years should be considered (cf. Becker 2016). What is interesting is that the age of 5.5 years is also that found among the Etruscans at Tarquinia as the age when "children" achieved "adult" status, and with it the right to be interred with the adults in the principal cemetery (Becker 2007a, 2016). No unusual or atypical finds were made from among these limited skeletal remains at Halieis (e.g. Becker 1988).

A Second Perinatal; Perhaps A Perinatal Cemetery?

Schlehofer reports that her study of the area 1 excavations, in which were found the two distinct individuals identified as Grave 25 and the pyre, she found another similar, or possibly parallel situation. Directly northwest of the *hydria* containing the neonate Schlehofer identified a *chytra*, a large cooking pot with its lid in place found in 1973, and which she associates with the field record TR 73-1: Unit 7; which is the same as I have for the *hydria*. Within the *chytra* there were a few small bones that Schlehofer now suggests may be those of another neonate. The contents of this *chytra* were not sieved, but were packed in bags that Becker did not see. B. Rafn noted that these bone fragments were listed with the "animal bones".

Schlehofer reports that the *chytra*, with lid in place, was held in place by large stones, and thus was positioned in line with the burial *hydria* as well as offering deposits that lay to the southeast. She infers, quite reasonably, that the *chytra* represents the grave of another neonate. The location of a funeral pyre as well as the burials of two neonates at this edge of the necropolis area would confirm several inferences regarding culture at this site. First, that pyres were not likely to be within a funeral area, but would be nearby. Second, that the bodies representing perinatal deaths (perhaps up to 5.4 years of age?) were not buried among the members of the community, but were placed in an area nearby, as was the rule among the ancient Etruscans (Becker 2007a), but not the Messapians (Becker 1997a).

COMPARATIVE DATA

In recent years efforts expended in the recovery of data from mortuary contexts in Greece, and the study of the occupants of these graves has developed enormously. Some of the earlier publications relating to skeletal populations of the Classical period (e.g. Angel 1982) reflect methods and interpretations that were largely untested. The growing numbers of recent studies provide means by which we may better examine these bones of the ancients as well as methods that are tested by several scholars working in parallel, if not together.

Many of the comparative situations noted in this paper are taken from findings made in other parts of the Classical world. Fortunately, the rapid growth of research activity in Greece now provides the basis for applying new methods to seeking specific findings regarding human biology in Greece and the application of these finds to the interpretation of ancient behaviors. Greek samples of significant size and appropriate preservation, which are difficult to attain anywhere in the world (see Becker 1994) are now commonly identified in Greece. We may expect that in the region around Halieis there will be finds that may utilize the limited available data provided here.

During the period of field study in Porto Cheli the nearest and best studied human skeletal material had been recovered from the Franchthi Cave. Those materials are too few and too early in time to be of direct use in decoding meaning or making comparisons with these data from Halieis. Jacobsen (1969: 373-374) identified two Neolithic inhumations and a Mesolithic male inhumation. The analysis of these revealed that around the formal burial of this short male (158 cm.) were bits of eight other humans, and five other people were represented among the bones of the two Neolithic children (Angel 1969). These findings are similar to those from

our Classical population, indicating that earlier burials are always being disturbed in the course of subsequent mortuary activities.

The extensive dental data available from Halieis, not included here, may provide future researchers with useful comparative information through which perspective might be gained. In the 1980s dentition from a few Minoan populations (Carr 1960), and groups from the Late Roman period and after (Burns 1980) had been studied. Very little was available from the time and area of Halieis. Angel's landmark works had provided only the most limited introduction to the skeletal biology of this specific region (see Angel et al. 1980).

Perinatal Burials

Schlehofer's insights into the archaeological record at Halieis have provided support for a theory regarding perinatal burial location in this region. Of considerable note regarding the near complete absence of perinatals in this skeletal collection is the data now being assembled in Greece and elsewhere in the Classical world relating to differential mortuary rituals as indicators of cultural boundaries. E. L. Smithson's (1968: 25, n. 68) listing of infant burials then known from Athens had provided only a hint of what could be learned from these tiny remains. Of interest is the fact that the skeleton of the woman excavated by Smithson was studied by J. L. Angel, who failed to note the presence of a fetus among these remains (Liston / Papadopoulos 2004; see also their earlier studies). We have confirmed the presence of only one individual below the age of 5.5 years at Halieis. In Grave 25 and the pyre, within the area designated as necropolis area 1, there are two distinct contexts from which human remains have been recovered, one of which is a perinatal. A second is posited by Schlehofer, and can be confirmed by a brief anthropological study.

Based on evidence from excavations at Argos and elsewhere in the Argolid, Hägg (1974) recognized that within the Argolid alone there were considerable and important differences in mortuary patterns. "Especially in the case of burial customs the regional and local variations are impressive" and that these differences provide "strong indications of the individuality of each region" (Hägg 1983: 27-31). For example, Hägg noted that Protogeometric cist graves generally were of the same size (implying low levels of social class differentiation), but that infant burials were smaller. Low variation in adult grave goods reinforces ideas of an egalitarian society, as does the evidence that the tombs of children seemed richer (see Hägg 1974). Bourbou addresses the complexities of these issues as they relate to matters relating to high levels of infant mortality that are normative in these societies.

Hägg's brilliant observations regarding variations in mortuary patterns within small areas that had once been seen by archaeologists as belonging to a single "culture," or shared tradition, have parallels in Italian contexts. Cultural differences have been identified within areas of Italy where similarities in material culture had suggested uniformity (cf. Becker 1992). On a wide scale we find that early Romans buried perinatals just outside their residences (Becker 1996a), while Etruscans living immediately to the north (and their later descendants) buried these small bodies in specialized cemeteries (Becker 2004). To the south, the Messapians buried perinatals as if they were normal members of the community (Becker 1997a). More specifically, in central Italy during the Late Iron Age the use of hut urns as cinerary containers for old adult males, with inferred high status (see Becker 1987), has been taken as a general rule. The earlier evidence for a possible localized variation to this rule has recently been retested with the finding that at least in one area hut urns contain the cremated remains of only adolescents (Becker 2005b, also 1998a).

These recent developments in understanding culture history through the use of specific sets of data produced through skeletal analysis are helping us to refine our views of ancient societies. Rather than seeing a relatively homogeneous pattern in a region, we now can apply biological findings on specific levels to understand the territories controlled by individual city-states. Information regarding cultural patterns in cemetery use also can be tested by moving to more recently developed modes of skeletal research incorporating DNA analysis and other modern procedures.

CONCLUSIONS

The 28 individuals identified among these graves include one neonate, one cremated adult of undetermined sex, four children between 5.5 and 12 years of age, eleven adult females and eleven adult males. These burials were made over a period of some 200 years, suggesting that they represent the remains of at most two families. The location of the *hydria* with the neonate, and Schlehofer's important inference on a possible neonate in a nearby vessel, suggest a perinatal cemetery may have been adjacent to the necropolis area (cf. Becker 2007, cf. Note 2, below). A second perinatal burial indicates a local cemetery area for these small bodies rather than subfloor or in-house burials as has been found elsewhere in time and space. Regardless of where we ultimately find the Halieis perinatals to have been buried, there must have been a different mortuary program for the expected high numbers of deaths in this category, which is a common practice cross culturally.

The people in the graves listed here appear to reflect a perfectly normal age distribution. The sex ratio of 1:1 is what would be expected in a normal population, although women often represent a slightly higher percentage of adults.

Regarding the stature and nutrition of these people, given the extremely small size of the sample (N=3) this average stature of 166.75 cm. must not be given great significance. However, this figure is consistent with statures known for other ancient Greek peoples. The relatively poor state of preservation of the Halieis bones restricts our access to extensive information concerning stature. Further work in this area, however, would benefit from the presence on site of a physical anthropologist. The publication of the detailed results of this study should provide an important source of information for future investigators concerned with the health, nutrition, and status of the people from this region of ancient Greece.

ENDNOTES

[1] While conducting the evaluation of the Classical population an examination of the later and probably medieval population of nine or more individuals was conducted. The extensive data from these people should prove useful for comparative medieval studies. As with the Classical population the information recovered from these people includes extensive dental data, metric, and non-metric information.

[2] Regarding the 1958 campaign, Jameson (1969: 341) noted that "The earliest burials, probably cremations, in large hydriai and [SOS] amphorae" probably date from the late VII to early VI centuries BCE. As we can see from this evaluation, some if not all of the *hydriai* burials may be those of infants. When I first conducted this study, I suggested that the skeletons in the burials noted by Jameson may represent the "missing" infants. Schlehofer's identification of a probable second perinatal from the same location not only confirms this suggestion, but takes us back to Jameson's earlier observation. Schlehofer points out that the vessels described by Jameson (large *hydriai* and SOS-*amphorai*) were not recovered during formal excavation but in fact were recovered without contexts being noted. However, the Jameson excavations of 1958 were in the immediate area of the vessels now confirmed as holding one neonate and suspected of holding a second. The use of *amphorai* and *hydriai* as burial vessels is quite common, and some of the pieces of human bone found on site may have been within these burial containers.

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Sources of illustrations

Figure 1: Photograph no. 79-105-31a of the excavation documentation 1979, Halieis Excavations Archives, Indiana University, Bloomington / Indiana (USA)

Figure 2: Photograph no. 75-53-38 of the excavation documentation 1975, Halieis Excavations Archives, Indiana University, Bloomington / Indiana (USA)

Figure 3: Photograph no. 75-56-33 of the excavation documentation 1975, Halieis Excavations Archives, Indiana University, Bloomington / Indiana (USA)

Figure 4: Photograph no. 79-103-6 of the excavation documentation 1979, Halieis Excavations Archives, Indiana University, Bloomington / Indiana (USA)

REFERENCES

Angel 1969 — John Lawrence Angel, Appendix II: Human Skeletal Material from Franchthi Cave, in: Thomas W. Jacobsen, Excavations at Porto Cheli and Vicinity, Preliminary Report, II: The Franchthi Cave, 1967–1968, Hesperia. Journal of the American School of Classical Studies at Athens 38, 1969, 380-381

Angel 1982 — John Lawrence Angel, Appendix 1: Ancient Skeletons from Asine, in: Søren Dietz, Asine II. Results of the Excavations East of the Acropolis 1970–1974, Fasc. 1: General Stratigraphical Analysis and Architectural Remains (1982), 105-138

Angel et al. 1980 — John Lawrence Angel / Sarah Bisel / Søren Dietz, Det mykenske menneske, Nationalmuseets Arbejdsmark 1980, 5-13

Ault 2005 — Bradley Allen Ault, The Excavations at Ancient Halieis, Vol. 2: The Houses. The Organization and Use of Domestic Space (2005)

Becker 1987 — Marshall Joseph Becker, Appendice I: Analisi Antropologiche e Paleontologiche: Soprintendenza di Roma, in: Gilda Bartoloni / F. Buranelli / V. D'Atri / Anna De Santis, Le Urne a Capanna Rinvenute in Italia (1987), 235-246

Becker 1988 — Marshall Joseph Becker, The Contents of Funerary Vessels as Clues to Mortuary Customs: Identifying the Os Exceptum, in: Proceedings of the 3rd Symposium on Ancient Greek and Related Pottery, Copenhagen 1987, edited by Jette Christiansen / Torben Melander (1988), 25-32

Becker 1990 — Marshall Joseph Becker, Etruscan Social Classes in The VI Century B.C.: Evidence from Recently Excavated Cremations and Inhumations in the Area of Tarquinia, in: Die Welt der Etrusker (Internationales Kolloquium, October 1988), edited by Huberta Heres / Max Kunze (1990), 23-35

Becker 1992 — Marshall Joseph Becker, Cultural Uniformity During the Italian Iron Age: Sardinian Nuraghi as Regional Markers, in: Sardinia in the Mediterranean: A Footprint in the Sea, edited by Robert H. Tykot / Tamsey K. Andrews (1992), 204-209

Becker 1994 — Marshall Joseph Becker, The Necropoleis of Satricum, Italy 800 – 300 B.C.: Biological Evidence for Cultural Continuities During a Period of Political Change, Etruscan Studies. Journal of the Etruscan Foundation 1, 1994, 46-58

Becker 1995 a — Marshall Joseph Becker, Infanticide, Child Sacrifice and Infant Mortality Rates: Direct Archaeological Evidence as Interpreted by Human Skeletal Analysis, Old World Archaeology Newsletter 18, 1995, 24-31

Becker 1995 b — Marshall Joseph Becker, Cremations and Fragmentary Human Skeletons from Pontecagnano (Salerno), Italy: New Directions in Research. Old World Archaeology Newsletter 18, 1995, 26-35

Becker 1996 a — Marshall Joseph Becker, Human Skeletal Remains Recovered from the Ficana Excavations, in: Scavi di Ficana, 2 (I): Il Periodo Protostorico e Arcaico, edited by J. Rasmus Brandt (1996), 453-479

Becker 1996 b — Marshall Joseph Becker, Medieval Mortuary Customs in Italy: Skull Relocations and Other Unusual Burial Procedures, Archèologia medievale: cultura materiale; insediamenti: territorio 23, 1996, 699-714

Becker 1997 a — Marshall Joseph Becker, Perinatal and Other Burial Patterns in Lucania: Evidence from Collina San Salvatore at Timmari, Italy During the 7th – 6th Centuries BC, Old World Archaeology Newsletter 20, 1997, 1-12

Becker 1997 b — Marshall Joseph Becker, Skull Relocations in Early Christian Burials: An Example from Santa Maria alla Senigola at Pescarolo, near Cremona, Italy, Notizie dal Chiostro del Monastero Maggiore. Rassegna di Studi del Civico Museo Archeologico e del Civico Gabinetto Numismatico di Milano 59, 1997, 97-126, Tav. XLVI-XLIX

Becker 1998 a — Marshall Joseph Becker, The Cremations in the Calabrese Urn from Cerveteri and from Other Cinerary Containers in the Museo Gregoriano Etrusco, Vatican Museums, Bollettino dei Monumenti, Musei e Gallerie Pontificie 18, 1998, 57-73

Becker 1998 b — Marshall Joseph Becker, Identifying an 8th – 7th Century BC Cemetery at Mozia, Sicily: Evaluation of Redeposited Human Skeletal Remains to Test an Archaeological Hypothesis, Sicilia Archeologica: rassegna periodica di studi, notizie e documentazione 31,96, 1998, 7-12

Becker 1999 a — Marshall Joseph Becker, Calculating Stature from in situ Measurements of Skeletons and from Long Bone Lengths: An Historical Perspective Leading to a Test of Formicola's Hypothesis at 5th Century BCE Satricum, Lazio, Italy, Rivista di Antropologia 77, 1999, 225-247

Becker 1999 b — Marshall Joseph Becker, Bioarchaeology [Review Article], American Journal of Archaeology 103, 1999, 528-531

Becker 2004 — Marshall Joseph Becker, The Cazzanello Perinatal Cemetery: Continuities of Etruscan Mortuary Practices into the Late Antique Period and Beyond, Studi etruschi 70, 2004, 255-267

Becker 2005 a — Marshall Joseph Becker, Etruscan Women at Tarquinia: Skeletal Evidence for Tomb Use, Analecta Romana Instituti Danici 31, 2005, 21-36

Becker 2005 b — Marshall Joseph Becker, Cremations in Five Hut Urns in the Museo Gregoriano Etrusco: Implications for Iron Age Cultural Diversity, in: Alesssandro Mandolesi, Materiale protostorico: Etruria et Latium Vetus. Museo gregoriano etrusco, Cataloghi 9 (2005), 485-495

Becker 2007 a — Marshall Joseph Becker, Childhood Among the Etruscans: Mortuary Programs at Tarquinia as Indicators of the Transition to Adult Status, in: Constructions of Childhood in Ancient Greece and Italy, edited by Ada Cohen / Jeremy B. Rutter (2007), 281-292

Becker 2007 b — Marshall Joseph Becker, II.4.2. The Anthropological Analysis of the Human Skeletal Remains: Tombs 6008, 6093 and 6092. Suspected Tomb, in: Helle Horsnæs, The Excavations, in: Hellenistic and Roman Pontecagnano: The Danish Excavations in Proprietà Avallone 1986–1990, edited by Birgit Tang (2007), 50-52

Becker 2008 a — Marshall Joseph Becker, Cremation and Comminution at Etruscan Tarquinia in the 5th – 4th Century BCE: Insights into Cultural Transformations from Tomb 6322, in: Votives, Places and Rituals in Etruscan Religion: Studies in Honor of Jean MacIntosh Turfa, edited by Margarita Gleba / Hilary Becker (2008), 229-248 (Chapter 14)

Becker 2008 b — Marshall Joseph Becker, Perinatal Cemeteries in Etruria: The Continuing Search for Context and Meaning, Paleopathology Newsletter 142, 2008, 17-19

Becker 2009 — Marshall Joseph Becker, Skull Rituals and Plaza Plan 4 at Tikal: Lowland Maya Mortuary Patterns, The Codex [The University of Pennsylvania Museum] 17/1-2, 2008–2009, 12-41

Becker 2011 — Marshall Joseph Becker, Etruscan Infants: Children's Cemeteries at Tarquinia, Italy, as Indicators of an Age of Transition, in: (Re)Thinking the Little Ancestor: New Perspectives on the Archaeology of Infancy and Childhood, edited by Mike Lally / Alison Moore (2011), 24-36

Becker 2012 — Marshall Joseph Becker, Coming of Age in Etruria: Etruscan Children's Cemeteries at Tarquinia, Italy, International Journal of Anthropology 27/1-2, 2012, 63-86

Becker 2014 — Marshall Joseph Becker, Tophets and Their Functions: Clues from Human Skeletal Remains at Mozia, Sicily of the Late VIII – Early VII Centuries BCE, International Journal of Anthropology 29/1-2, 2014, 13-25

Becker 2016 — Marshall Joseph Becker, Etruscan Skeletal Biology and Etruscan Origins, in: A Companion to the Etruscans, edited by Sinclair Bell / Alexandra A. Carpino (2016), 181-202

Becker Ms. A — Marshall Joseph Becker, Field Notes: Halieis 1981. Manuscript on File, Becker Archives: West Chester University of Pennsylvania

Becker / Donadio 1992 — Marshall Joseph Becker / Alessia Donadio, A Summary of the Analysis of Cremated Human Skeletal Remains from the Greek Colony of Pithekoussai at Lacco Ameno, Ischia, Italy, Old World Archaeology Newsletter 16/1, 1992, 15-23

Becker / Salvadei 1992 — Marshall Joseph Becker / Loredana Salvadei, Analysis of the Human Skeletal Remains from the Cemetery of Osteria dell'Osa, in: La Necropoli Laziale di Osteria dell'Osa, edited by Anna Maria Bietti Sestieri (1992), 53-191

Becker et al. 2009 — Marshall Joseph Becker / Jean MacIntosh Turfa / Bridget Algee-Hewitt, Human Remains from Etruscan and Italic Tomb Groups in the University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia: Analysis and Inferences, Biblioteca di "Studi etruschi". Istituto di Studi Etruschi ed Italici 48 (2009)

Bourbou 2001 — Chryssi Bourbou, Infant Mortality: The Complexity of It All!, ΕΥΛΙΜΕΝΗ. Μελέτες στην κλασική αρχαιολογία, την επιγραφική, τη νομισματική και την παπυρολογία 2, 2001, 187-201

Burns 1980 — Peter E. Burns, A Multivariate Study of Dental Caries in Ancient Greece [abstract], American Journal of Physical Anthropology 52, 1980, 209

Carr 1960 — H. Graham Carr, Some Dental Characteristics of the Middle Minoans, Man. The Journal of the Royal Anthropological Institute 60, 1960, 119-122

Hägg 1974 — Robin Hägg, Die Gräber der Argolis in submykenischer, protogeometrischer und geometrischer Zeit, 1: Lage und Form der Gräber (1974)

Hägg 1983 — Robin Hägg, Burial Customs and Social Differentiation in 8th-Century Argos, in: The Greek Renaissance of the Eighth Century B.C.: Tradition and Innovation, edited by Robin Hägg (1983), 27-31

Jacobsen 1969 — Thomas W. Jacobsen, Excavations at Porto Cheli and Vicinity, Preliminary Report II: The Franchthi Cave, 1967–1968, Hesperia. Journal of the American School of Classical Studies at Athens 38, 1969, 342-380

Jameson 1969 — Michael H. Jameson, Excavations at Porto Cheli and Vicinity, Preliminary Report I: Halieis, 1962–1968. Hesperia. Journal of the American School of Classical Studies at Athens 38, 1969, 311-342

Liston / Papadopoulos 2004 — Maria A. Liston / John K. Papadopoulos, The "Rich Athenian Lady" Was Pregnant: The Anthropology of a Geometric Tomb Reconsidered, Hesperia. Journal of the American School of Classical Studies at Athens 73, 7-38

McAllister 2005 — Marian H. McAllister, The Excavations at Ancient Halieis. Vol. 1: The Fortifications and Adjacent Structures (2005)

Nielsen 1988–1989 — Marjatta Nielsen, Women and Family in a Changing Society: A Quantitative Approach to Late Etruscan Burials, Analecta Romana Instituti Danici 17-18, 1988–1989, 53-98

Rudolph 1979 — Wolf W. Rudolph, Excavations at Porto Cheli and Vicinity. Preliminary Report V: The Early Byzantine Remains, Hesperia. Journal of the American School of Classical Studies at Athens 48, 1979, 294-320

Smithson 1968 — E. L. Smithson, The Tomb of a Rich Athenian Lady, ca. 850 B.C. Hesperia. Journal of the American School of Classical Studies at Athens 37, 1968 77-116

Trotter / Gleser 1952 — Mildred Trotter / Goldine C. Gleser, Estimation of Stature from Long Bones of American Whites and Negroes, American Journal of Physical Anthropology 10, 1952, 463-514

Trotter / Gleser 1958 — Mildred Trotter / Goldine C. Gleser, A Re-Evaluation of Estimation of Stature Based on Measurements of Stature Taken During Life and of Long Bones After Death, American Journal of Physical Anthropology 16, 1958, 79-123

Vallois 1960 — H. V. Vallois, Vital Statistics in Prehistoric Populations as Determined from Archaeological Data, in: The Application of Quantitative Methods in Archaeology, edited by Robert F. Heizer / S. F. Cook (1960), 181-122